(12) **UK Patent Application** (19) **GB** (11) **2 253 569** (13) **A**

(43) Date of A publication 16.09.1992

(21) Application No 9203893.4

(22) Date of filing 24.02.1992

(30) Priority data
(31) 9105029 (32) 09.03.1991 (33) GB

(71) Applicant
Bell Fruit Manufacturing Company Limited

(Incorporated in the United Kingdom)

Leen Gate, Lenton, Nottingham, NG7 2LX,
United Kingdom

(72) Inventors
Neville Dale Chadwick
Simon Charles Melen

(74) Agent and/or Address for Service
Barker, Brettell & Duncan
138 Hagley Road, Edgbaston, Birmingham, B16 9PW,
United Kingodm

(51) INT CL⁵
A63F 9/18 // G06F 15/44

(52) UK CL (Edition K)
A6H H17

(56) Documents cited
None

(58) Field of search
UK CL (Edition K) A6H H17
INT CL⁵ A63F, G06F

(54) **Skill-with-prizes machine**

(57) In a skill-with-prizes machine, the questions available to pose to a player are a relatively small subset of a much larger number of questions in the machine's memory unit. The active subset of questions changes during the working life of the machine. A large proportion of the questions in the new active subset are common to the preceding subset with a relatively small number of new questions. The change in subset may occur as a result of a predetermined event, such as a given time, number of games or the value of prizes awarded.

In this manner the commercial viability of a machine is maintained, whilst still rewarding the skill and knowledge of a regular user.

GB 2 253 569 A

5,000   10,000

50,000

1
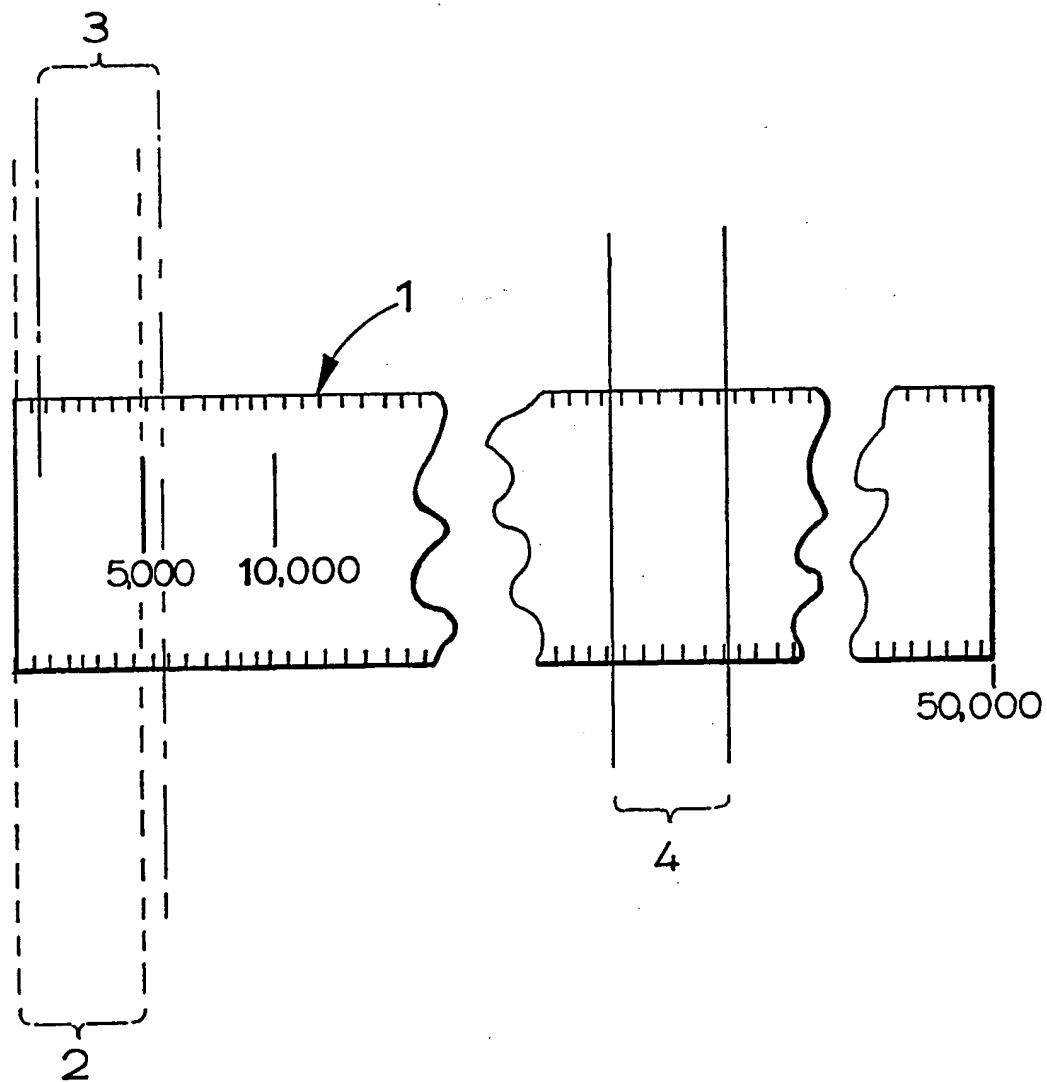
SKILL WITH PRIZES MACHINES

This invention relates to skill with prizes machines in which a player is asked a series of questions on an electronic display screen and upon correctly selecting a series of answers in a multiple-choice format can gain a prize which is usually cash, but which could simply be the entry of his name as top scorer, or indeed any prize (the "prize" could even simply be the knowledge of whether the question had been answered correctly). The player usually indicates his selected answer to a question by pressing an appropriate button. The category of question to be asked by the machine is usually under the control of the user. For example, the user may typically be able to select a category from the choice of "history", "sport", "geography", and "music" by pressing an appropriate button.

The whole basis of a skill with prizes machine depends upon skill, in that knowledge of the correct answer to a question allows the player to progress through the game and there are no chance elements involved in this process (except for accidentally pressing the wrong button). A player or group of players with good memories or access to a previously compiled list of questions could (and in fact do) win considerable amounts of money from such machines and affect their commercial viability. In order to try to overcome this problem manufacturers have included large numbers of individual questions within each machine to extend the learning time and increase the life of the machine on site. This approach is limited by the physical capacity of the machine to store the questions.

Another factor which we consider relevant and important is to give regular players of the machine the impression that their skill is being rewarded, and thus encourage them to play the machine more as they feel

5 that they have a better chance of obtaining a prize. Merely increasing the number of individual questions in the machine would not achieve this as the questions would be (to a large extent, and within each category) chosen by the machine at random, and a larger overall

10 number of questions would present each question less frequently to the player and thus reduce the learning opportunity.

As an example of the current state of the art,

15 Bell-Fruit Mfg Ltd's skill with prizes machines for sale at present contain 12000 questions and 36000 answers, which are contained upon a removable magnetic floppy disk medium. This is believed to be near to the maximum number of questions for which the reinforcement

20 of regular play by means of the learning opportunity occurs, but it is still not high enough to stop long term loss of machine income by players becoming over-skilful.

25 It would be valuable to reinforce the learning opportunities given to the player by reducing the total number of questions available, but in present known machines this is in direct conflict with the approach to the problem of income loss already outlined.

30 If the elimation of the loss of income from Skill with Prizes machines due to over-skilful players is considered alone, increasing the overall number of questions from which the question offered to the player

35 is made would achieve this, but at the expense of the

reward for skill element, making the machine less attractive to regular players.

A solution used previously has been to offer periodically a new set of questions by changing the removable floppy disk used as the question store. This again successfully reduces income loss by the use of high skill but alienates the regular player as he has to start his learning process from scratch after the change of questions.

According to a first aspect the invention comprises a skill with prizes machine having a memory provided with a set of questions for posing to a player, and an active group of the questions comprising a subset of the set of questions, the active group comprising a different subset of questions at different times in the working life of the machine, the machine limiting the questions available for posing to the player in any one game to those in the active group at that time.

This enables us to ameliorate the problem of the use of excessive skill depressing machine income, and simultaneously the problem of upsetting regular players by a wholesale change of questions which effectively negate the investment which they have made in their learning progress up to the time of the change. The size of the active group effective at any one time can be reduced below the conventional level of around 12,000 to allow reinforcement of learning opportunities.

Preferably the subset comprising the active group is changed automatically after a predetermined number of games, predetermined time, or other predetermined event.

Preferably a first subset and a second subset of questions comprising the active group at different times have a common question, or core of questions.

Preferably successive subsets which form the active group successively contain a relatively large common core of questions and a relatively small portion of different questions. The ratio of common to different questions in successive subgroups may be between about 10:1 and 100:1, and is most preferably around 50:1.

The machine may be arranged in certain circumstances to select a question from the current active group in a particular instance from the "new" questions not present in the previous subset. For example, if say twenty successive correct answers are required in order to win a £10 cash prize the machine may limit the selection of the last few questions (say Nos 17-20) to being from the "new" questions. This would provide some hindrance to the over-skilled player (or group of players) since there would be less opportunity to have learned the question, but have no real effect on the unskilled player since after so many correct answers in a row he would not be too upset to see a question he probably had not seen before.

According to a second aspect the invention comprises a memory or data storage unit for use in a machine in accordance with the first aspect of the invention, the unit having associated organisation means which limits the active group of questions available for posing to a player to a subset of a larger total set of questions, the subset chosen for the active group allowed for selection by the

organisation means being different at different times in the working life of the unit.

According to a third aspect the invention comprises a method of reducing the chance of winning a prize in a skill with prizes machine comprising choosing the questions asked a player from a subset of a larger set of questions, and changing the subset from which questions are asked from time to time.

When the subset from which questions are asked is relatively small, and the larger set is relatively large, the method also assists less knowledgeable players to learn answers to questions.

A skill with prizes machine will now be described by way of example only with reference to the accompanying drawing which is a schematic representation of a set of questions and subsets within that set.

The machine of the example is configured to contain a large number of questions, in fact sufficient in the first instance to eliminate the possibility of learning enough of them to significantly depress the machine income. The question storage medium is a Winchester type magnetic disk, an optical disk, CD-ROM, or other high-capacity storage device.

In order to reinforce the impression to the player that he can influence his chances of winning by skill in becoming familiar with the questions, the questions being offered by the machine to the player at any given time comprise a subset of the overall question field. In the example, the machine has a memory having 50 000 questions and 150 000 answers. However, at any one

time only some 5 000 of the questions are available for selection by the machine. The exact subset of questions available for offer to the player changes according to a choice of additional factors. One such factor may be the number of games played on the machine, so that after a certain number of games a number of the questions to be offered would be deselected and an equivalent number, previously excluded, would be included in those available for offer.

Merely by way of example, the questions numbered from 1-5000 would be available for the machine to offer to the player, and upon a question being required for the machine to offer to the player a question from this subset would be selected at random. For games 1001-2000 the question subset being offered would be numbered from 100-5100; for games 2001-3000 questions from 200-5200; and so on. It can clearly be seen that there is a progression through the overall available question set, with the subset on offer at any given time being stable for a certain time and changing by a small proportion after every given number of additional games. Thus the player still receives the largest proportion of his questions from the main body of the subset, giving him the learning opportunity as desired, but a number of "old" questions are being removed and new ones introduced on a regular basis.

As a refinement of the example, there would perhaps in practice be a number of question subsets containing various categories of questions, and the question subsets in each different category would be similarly changed according to the number of games played.

The Figure illustrates this principle. The overall set of 50 000 questions is represent as block 1, the initial subset of 5 000 as band 2 of the block, and the second subset for games 1 001 to 2 000 as band 3 (the horizontal scale is not accurate). Band 4 illustrates the subset of questions in use many weeks on.

In alternative schemes based on the same invention, the criterion for including new questions and removing existing questions from the subset available for offer could be based upon the number of times that an individual question had been asked in a given time - for instance once a certain question had been selected for offer to the player, say, 50 times it could be deleted from the available question list and a new question included in the subset to be offered.

Alternatively, the movement of the subset of questions to be offered through the total available field of questions could be determined by the amount and value of prizes won. For instance, if no prize was won in a game the subset would remain stationary: if £1 had been won, say, ten questions would replaced; if £10 had been won then, say, 100 questions would be replaced. This method would prevent highly skilled players from winning large prizes several times in a row as it would be more likely that a question previously unseen by the player, and therefore one that it had not been possible to learn, would occur after a large prize had been won. However, if unskilful players had not won any prizes the question set would remain constant to allow them more learning opportunity.

In practice a combination of prize-related and number of game related question subset shift techniques might advantageously be used to prevent groups of players deliberately losing on the machine, learning
[5] the questions and then aiming for the higher prizes with a high confidence of achieving more than enough to cover previous losses.

It will be appreciated that subsets of questions
[10] do not have to be comprised of consecutively numbered questions. If the total question field contains n questions, and there are r questions in the active group, then there ^nC_r different subset combinations possible. It may not be possible to arrange for each
[15] and every one of the adjacent pairs of subsets of the ^nC_r subsets to have a large (or uniformly sized) common core of questions. One or more drastic discontinuities in the number of common questions between adjacent subsets may be necessary to increase
[20] the number of available subsets above $(n - r + 1)$.

Of course, the above examples do not show exhaustively the method of control, and the numbers used may need to be varied within wide limits depending
[25] on the type of game. However, the basic principle of a moving subset within a much more extensive total field, from which the questions at any particular point in a game are chosen would still be applicable.

[30]

[35]

CLAIMS

1. A skill with prizes machine having a memory provided with a set of questions for posing to a player and an active group of questions comprising a subset of the set of questions in which the active group comprises a different subset of questions at different times in the working life of the machine, the machine limiting the questions available for posing to the player at any one time to those in the active group at that time.

2. A skill with prizes machine according to claim 1 in which the active group of questions is changed automatically after a predetermined number of games.

3. A skill with prizes machine according to claim 1 or claim 2 in which the active group of questions is changed automatically after a predetermined time.

4. A skill with prizes according to any of the preceding claims in which a subset of questions comprising the active group has one or more questions in common with the preceding active group.

5. A skill with prizes machine according to claim 4 in which the successive active groups contain a relatively large common core of questions with a relatively small portion of different questions.

6. A skill with prizes machine according to claim 4 or claim 5 in which a question from the new questions in an active group is selected in the event of certain circumstances arising.

7.   A skill with prizes according to claim 6 in which the circumstances arise as a result of a large number of consequentive correct answers.

5   8.   A memory or data storage unit for use in a skill with prizes machine, provided with a set of questions from which an active subset is selected in which the unit has associated organisation means which limits the active group of questions available for posing to a
10   player to a subset of a larger total set of questions and the subset chosen for the active group allowed for selection by the organisation means being different at different times in the working life of the unit.

15   9.   A memory or data storage unit according to claim 8 in which the storage medium is a magnetic disk.

10.   A memory or data storage unit according to claim 8 in which the storage medium is an optical disk.
20

11.   A memory or data storage unit according to claim 8 in which the storage medium is a CD-ROM.

12.   A method of operating a skill with prizes machine
25   in which the questions are provided in a large set and the set of questions which may be posed to a player are a subset selected from that larger set, the subset being changed after a predetermined event.

30   13.   A method of operating a skill with prizes machine according to claim 12 in which a subset of questions is provided for each of a number of categories, the subset for a category being changed after a predetermined event for that category.

35

14. A method of operating a skill with prizes machine according to claim 12 or claim 13 in which a subset is changed after a predetermined time.

5   15. A method of operating a skill with prizes machine according to any one of claims 12 to 14 in which a subset is changed after a predetermined number of games.

16. A method of operating a skill with prizes machine
10   according to any one of claims 12 to 15 in which a subset is changed after a predetermined number of correct answers.

17. A method of operating a skill with prizes machine
15   according to any one of claims 12 to 16 in which a subset is changed after a predetermined value of cash prizes have been won.

18. A method of operating a skill with prizes machine
20   according to any one of claims 12 to 17 in which a subset is changed after any question from a subset has been asked a predetermined number of times.

19. A method of operating a skill with prizes machine
25   according to any one of claims 12 to 18 in which a subset is only changed if a prize is won in that game.

20. A method of operating a skill with prizes machine according to claim 19 in which the extent of the change
30   to a subset depends on the value of the prize won in that game.

21. A skill with prizes machine of the kind set forth, substantially as described with reference to the
35   drawing.

22. A memory or data storage unit for use in a skill
with prizes machine of the kind set forth,
substantially as described with reference to the
drawing.

5

23. A method of operating a skill with prizes machine
of the kind set forth, substantially as described with
reference to the drawing.

10

15

20

25

30

35

Examiner's report to the Comptroller under Section 17 (The Search Report)

Application number	
9203893.4	

Relevant Technical fields

(i) UK CI (Edition   K)   A6H (H17)

(ii) Int CL (Edition   5)   A63F; G06F

Databases (see over)

(i) UK Patent Office

(ii)

Search Examiner

B B CASWELL

Date of Search

8 MAY 1992

Documents considered relevant following a search in respect of claims   1-11, 21, 22

Category (see over)	Identity of document and relevant passages	Relevant to claim(s)
	NONE	